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The Effect of Country Life upon Women.

THE growing interest in their country homes shown by people who can afford to spend their winters in the city is manifested in the long sojourn that they make in them, and in the springing up all through the country of small estates, which are a refuge for the city-dweller to fly to in the summer. In the adornment of these homes great interest is taken, the problems of horticulture are present to the small cultivator as to the great proprietor, and add interest to his hours of recreation. As has been shown in these columns before, the country gentleman of the days of our forefathers has almost departed from the face of the earth. As a nation our leisure class now consists of women only. In them there can be seen to develop all the vices and virtues inherent to a leisure class. Indolence, luxury, triviality, narrowness, we find among them, with compensating reactions in the way of activity, prudence, seriousness and an endeavor for larger sympathy with all sorts and conditions of human beings.

Our men find their leading interests in the active life of towns. In professions, in business, in politics, in stirring careers of all kinds they utilize the restless energy of the true American, to whom repose is stagnation and rest a bore. Whether it is our stimulating climate, or the admixture of blood, that affects the male inhabitant of this country, certain it is that his nature demands occupation of an exciting kind. The man who loafs, the tramp, and the flâneur, who is the fashionable variety of the species, are all anomalies in our civilization; they exist, but under protest; they are freaks, not types; sports, and not the natural growth of our soil.

The general opinion is that the country is the place to be born in, but also a place to go away from as soon as one is old enough and big enough to know better what is worth while. Hence the country becomes merely a dormitory for young men, as our increased facilities for transportation make cities and great towns accessible to larger and larger regions of suburbs. The friction of their kind, the stir of multitudes, the thrill of competition, the struggle for success, prove irresistible to the young, and once inured to it the mature man rarely desires to leave it for a more healthful and quiet existence. The philosophical and contemplative temperament alone finds in the country that serene atmosphere where it can breathe most freely, but philosophers are rare birds.

Since, then, to most men of means their rural retreat rarely amounts to more than a place to smoke their cigars of an evening, or to drive or ride their well-groomed horses over pleasant roads of a Sunday, there remains to be considered what effect a prolonged residence in the country may have upon the mind of the woman who really bears the brunt of it, so to speak; whose life is molded by its restrictions, and whose character must receive from it a certain impression. To some of them, it must be confessed, their country life is but an interruption to their occupations and amusements; to others it is but a variety of social entertainment, while to a third and larger class it opens a new set of possibilities and affords a fresh field for their energies and tastes. To this latter class it becomes valuable, as every healthful experience is valuable, by showing the resources of one's own spirit.

American country life for the rich differs widely from English country life, in that it carries with it no exacting duties—no traditional customs to be followed out. The life of an English country gentleman is quite a business in itself. He has tenants to look after, he is apt to be a magistrate, he has a personal concern in the people of his village, who are often his political constituents, he has social relations all over his county; his wife and daughters are equally responsible, and held to strict account in that conservative land, in which people do not find it so easy to escape from obligations as they do with us. The country life is the real life there, the town life the recreation of a few weeks or months; whereas, Americans may be said to live in the city, and to go to the country for a little change. Their real social relations are all with the city; the natives of the villages near which they spend their summers, not being objects of charity, are practically outside the current of their existence, which is, on the whole, charming, luxurious, indolent, but largely selfish in its enjoyments.

But that there is both entertainment and profit for women in a country life for months at a time is undeniable. The most important lesson of a prolonged country sojourn is the discovery that amusement is not the rule of life, but its exception. Instead of being hurried from one thing to another, with days crammed full of distractions of all kinds, there is time for serious pursuits, reading, drawing, needlework, and, above all, gardening. One learns to be content with simple pleasures, interested in natural objects, in quiet details. That critical sense, over-stimulated by city life, which finds fault with all amusements because they are not ideally perfect, gets supplanted by a healthy satisfaction in such diversions as fall to one's lot without exceeding effort. A drive, a woodland walk, the planning of a parterre, the thoughtful study of a bit of landscape-gardening, a sketch, a new book, suffice to lend interest to the day, and afford subjects for conversation. What one does, gets a new significance from not being smothered by things one wants to do and cannot; a steadier habit of mind results, a greater power of concentration. There are fewer interruptions, therefore more can be accomplished. There is time for reflection—for reconsideration. Whatever work is done, one learns to depend, not on others, but on one's own judgment, one's own taste; hence ensues greater individuality, less imitation, a temporary emancipation from the effort to follow the crowd, which is the special temptation of city life.

The tendency of women being to nervous excitement, the greatest benefit to them arises from a suspension of many of the causes of undue stimulation, such as late

hours, variety of experience, continued rushing about to very little purpose. The soothing influences of rural life are soon felt, the mind reposes from its overstrain, anxiety is stilled, joyousness prevails. If the first effect of country-life be ennui, the effort to escape from it leads to wholesome results. The interest in gardening, on a large or small scale, is very apt to arise in the mind which seeks active occupation, and in that pursuit one can find an outlet for all the superfluous energy. And if one insists upon worrying, it will also afford a chance for that entertainment of the unoccupied hours.

Gardening is for women a most salutary occupation, giving them occasion to exercise their taste and skill, to add to their knowledge, to give value and importance to their surroundings. It can be conducted on a large or small scale; with great expense, or with very little, according to circumstances; and it is not only healthful to the body, but rousing to the mind to grapple with Nature, and bend her to purposes of profit or adornment.

Any purely objective interest is good for our over-subjective women, who need just what Englishwomen seem to have by nature, a delight in outdoor pursuits and direct contact with Nature. They ought to walk more, to live more in the open air, to rejoice more freely in woods and fields. As this interest increases in our leisure class we shall see a more natural and wholesome living result from it year by year; so that in the end we shall find that this strong instinctive love of the Anglo-Saxon race for the country is really as much a part of the true American development as it is an evidence of that of his British relations.

An Avenue of Live Oaks.

AMONG North American trees of the first size none are more picturesque or ornamental than the great Live Oaks of our southern Atlantic and Gulf states, and the illustration on page 7 shows how these trees can be used to the best effect. They grow rapidly when young, so that formal lines of these trees will become objects of rare interest and beauty in a few years, and, when they attain their full dimensions, will arch over an avenue a hundred feet wide. In the coast region of South Carolina and Georgia a few such avenues were planted a century ago, and these are now unequaled in this country, at least for dignity and impressiveness. A portion only of the grand approach to the typical old southern mansion is given in the picture. In these rows seven trees only can be seen, while there are thirty-three on either side of the broad avenue, which extends straight from the highway to the house. On either side of the central avenue another line of similar trees is set so as to make four equidistant rows and three parallel avenues. It is said that in the old ante-bellum days the small army of slaves belonging to the plantation filed every morning down one of the outer avenues, and, after passing in review before the house and receiving directions for the day, marched out under the moss-hung arches of the opposite one.

The scene of our illustration has been known for generations as Chelsea Plantation, and it is situated seven miles from Grahamville, on an arm of the Broad River, opposite Beaufort, South Carolina. The place is now owned by a club of gentlemen, mostly residents of this city, who occupy it as a place of winter resort. Game is abundant, the winter climate is remarkably genial, and the locality offers a grateful relief from the rigors of the north at this season. The soil here, with its underlying phosphate, is well adapted, not only to rice and cotton, but especially to the growth of trees, which flourish with great luxuriance in the moist air. On this and the neighboring plantations there are individual Live Oaks, much larger than any shown in the illustration, while many of the evergreen Magnolias are famous for their size and beauty.

The illustration is reproduced from a photograph taken by Mr. John L. Kuser, of Newark, New Jersey.

Why do some Promising Varieties Fail?

THE following are the essential parts of a paper by Professor L. H. Bailey, recently read before the Illinois Horticultural Society at Champaign, Illinois:

There is probably no greater discouragement in horticultural pursuits than the uncertainty which attaches to the purchase and production of new varieties. So great is the fear of new productions that very many people decry the introduction of novelties as hazardous and unfortunate. There must be reason for so widespread a feeling. There is one proposition, however, which needs to be presented at the outset in order to arrest attention upon what may seem to be a trite subject. There is probably no variety in existence, whether of fruit, vegetable or ornamental plant, which perfectly meets all the requirements demanded of it—that is, there is none which is ideal. If this perfect variety is not in existence, it must yet appear in the guise of a novelty. It is to the new things, therefore—to the future—that we must look for advancement; the old things are not capable of improvement. I may be asked here if the ideal variety ever can come—if it is among the possibilities? We only know that there has been a general uplift in the merits and variety of our cultivated productions during the present generation, and if we compare our varieties with those of a century or more ago, we find them to be, for the most part, far superior to their predecessors. We are justified, therefore, in expecting better things for the future.

But why is it that so many of the promising new things fail? There are probably some varieties which are introduced dishonestly for the sole purpose of money-getting, the introducer knowing that they are inferior or only old sorts renamed. But I am convinced that there is less of this practice than is generally supposed. I cannot believe that even ten per cent. of the failures in the new varieties is chargeable to any intentional moral fault of the introducer. These inferior varieties are not considered in this paper, for I have confined my inquiry to promising novelties. The reasons why promising varieties fail, fall readily into two categories: 1. The false or unfortunate ideals of the purchaser and seller. 2. The uncertain or unfavorable attributes of the varieties themselves.

1. It is a question if we should expect any new variety to exceed the combined merits of existing varieties in all points—that is, it is probably better to look for a variety which shall thoroughly satisfy one or two demands, rather than all demands. The details of horticultural pursuits are now so various that many of the ideals are contradictory, and therefore unattainable in one variety. We probably need to specialize in varieties as much as in other directions. I therefore look with suspicion upon a new variety which is introduced with the assumption that it shall supplant all other varieties; it should supplant only one other, and that the best of its class. This exaggerated praise is not wholly the fault of the introducer, for there is a demand for it among a very large class of our rural population.

2. But varieties themselves lack merit and persistence; that is, they do not bear out the promises which they seem to make. I may say at the outset that we often mistake the promises and regard the variety as more valuable than it has given us warrant to suppose. This is especially true if the variety is one of our own raising, for our interest in it is so great that we are unconsciously apt to forget or excuse its faults. But varieties often do promise more than they fulfill. Perhaps eighty or ninety per cent. of the varieties in our manuals and catalogues never come into general cultivation. Nearly 3,000 varieties of Apples have been described in American publications, but the important varieties probably do not exceed 100, certainly not 200. Nearly 700 varieties of Apples are offered in the catalogues of 1892. In the year 1889, 434 varieties of fruits, vegetables and ornamental plants were offered for sale in North America; in 1890, there were 575; in 1891, 884. This makes the enormous total, for three years, of 1,893 novelties. No one can expect that a greater part of these foundlings will find a permanent place in cultivation. In 1869, twenty-eight new Strawberries were introduced or prominently mentioned, of which only two—the Charles Downing and Kentucky—are at present known. In that year, also, thirty-six new Raspberries were introduced or prominently advertised, of which only the Philadelphia and Turner are now known, and these are rapidly passing from sight. Of the eight newer Blackberries of that year, five still persist, however—the Kittatinny, Missouri Mammoth, Wachuset, Western Triumph and Wilson's Early. Of the twelve or fifteen Dewberries now named, only three are prominent, and only one has gained a general reputation. All these illustrations show that there are in existence many more varieties

than we need, and yet there are few which really satisfy our expectations. This failure has little relation to the mere date of introduction of the varieties, that is, to their novelty, but to the broader and more important facts that very few varieties tend to surpass others which have come into existence earlier, and that variations run largely in similar directions, giving us many essential duplications in leading characters. The reason, I think, that so many comparatively unimportant varieties are disseminated, is because the varieties mislead us, and in several ways:

(1) New varieties are often not fixed or permanent in their characteristics, or do not show their full attributes at once.

New Tomatoes illustrate this fact forcibly. A year ago a chance Tomato-plant appeared in one of the benches of our forcing-houses. It proved to be the best forcing or winter Tomato which I had ever seen, and of a new type. I was proud of it, and I named it. Seedlings and cuttings were raised from it and set in the field, but none of the offspring seemed to present any decided merits. Many of them were entirely unlike the parent, even in the color of the fruit. Yet this plant stood in an isolated position where the seeds could not have been crossed. In fact, the plant cuttings varied much more widely from the original than did the seedlings. In 1889 and 1890 I sent out a new Tomato under the name of Ignotum. By careful selection we have kept this variety very close to its original characters; yet, from seeds of Ignotum, from fifteen seedsmen, last year, eight lots failed to produce a single typical Ignotum-plant. Varieties of Tomatoes are notably unstable, so much so that a variety rarely persists in its original characters for more than ten years, unless extra care is exercised to keep it true. This instability is true to a greater or less extent of all varieties which are propagated by means of seeds. But it is sometimes true of fruits as well which are propagated by buds or division of the plant. A young Cherry-tree stood in an English garden. The fruit was so indifferent that the owner was about to destroy the tree, but his little daughter had become attached to the tree and pleaded for its life. The tree was left, and the fruit began to improve. The mature tree gave an excellent fruit, which is now known as the Black Eagle. All fruit-growers or nurserymen of wide experience know that the first fruit of a plant is not to be accepted as a reliable indication of the permanent character of the plant. Sometimes the first fruit is better than the later fruit, and sometimes poorer, but I think that it is oftenest better. The first may be unusually profuse, or the fruit may be unusually large and fair, and if the originator or introducer draws his description from it, he is very likely to be disappointed in after years. On the other hand, some fruits show their full merits only after years of fruiting, like the Josephine de Malines and other winter Pears. In these cases, an impatient man might destroy a meritorious variety. This danger of introducing varieties which are not fully fixed, or whose habits are not fully known, can be avoided by giving the novelties a longer trial before they are introduced. Of course, the introducer feels that he cannot afford to wait a few or several years before he places a variety upon the market. He is afraid that others may introduce a similar variety, or he is impatient for the gain and notoriety which an introduction may bring. It is certain, however, that the novelty which has the longest record behind it is likely to win the greatest favor, and, therefore, to bring the greatest gain; and certainly one's reputation gains more from deliberate than from precipitate action.

(2) New varieties are often not adapted to a wide range of conditions.

However well a variety may thrive in its original place, this is no evidence that it will thrive in other places. Every horticultural convention affords new evidence that few varieties are cosmopolitan. A few days ago I heard a spirited discussion upon the merits of the Cumberland Strawberry, and almost every conceivable opinion was expressed concerning it. Some thought it to be among the most meritorious of Strawberries, and others had discarded it. Essentially this same discussion could be applied to most varieties of fruits. It does not follow that a variety is necessarily best adapted to the place or conditions in which it originates, but it is true that it stands little chance of being noticed and disseminated unless it is adapted to its birthplace. I am often tempted to construct a detail map of the distribution of some prominent variety of fruit. We should find the distribution to be peculiar, to be dense here and there, sparse in contiguous areas, and to skip entirely an irregular space now and then. Here in Illinois and westward, even the comparatively cosmopolitan Baldwin Apple is supplanted by the Ben Davis. It is too much to expect any one variety to thrive equally in all parts of a single state, not to speak of all parts of North America. Yet we are likely to regard an adverse report upon any novelty as a necessary condemnation of it, while the report may only define the limits and merits of the variety and thereby prove to be a decided advantage by tending to restrict the variety to its true place and sphere. I mean, in other words, that the success of a variety is not determined by the number of favorable reports upon it, but rather by its perfect adaptation to certain conditions and requirements. A variety is not a failure if, in one place alone, it is better than all other competing varieties.

A very important question now arises: Shall the originator endeavor to determine the conditions to which his variety is adapted before he introduces it? Adaptations often differ very widely between very small contiguous areas, and a variety may not be adapted to all the arable soils and all the exposures of a single farm. To discover, therefore, the full range of adaptability of a variety is to introduce it. The originator cannot discover these facts and still hold the stock in his own hands. The experiment stations can help him somewhat, but there are only about fifty of them in all North America. We cannot expect the originator or introducer, therefore, to know all the conditions under which a variety will succeed or fail. But we can expect, however, that he shall tell us all that he does know about it. He should tell us the soil upon which he finds it to succeed, the exposure and the treatment which it enjoys. It is his duty, also, to give the adverse as well as favorable reports, and the conditions under which they arose.

(3) Varieties bear a variable and uncertain relationship to disease and insect attacks.

We know that in every species of plant, which is ordinarily variable and which has been cultivated for a century or more, there are some varieties which are more susceptible than others to disease and insect injury, and that in some years these varieties are more injured than in others. Of a new variety, its relationship to these attacks has not yet been learned, and whether it is to be subject to them or to have immunity from them. Growing in limited quantity in a small space, it may escape attack for several, or even many, years; but as the area of its cultivation enlarges, the enemies find it, and it may turn out to be as liable to injury as any of the older varieties, and, like them, it may fail for this reason. In other words, absence of injury to a new variety may not indicate immunity from disease, but simply escape from it.

I am inclined to believe, also, that a variety may change in its relationship to disease, and possibly to insect attack. May it not be true that many of the so-called blight-proof Pears really have measurable immunity, and that after a time they become susceptible to attack? It is true, no doubt, that some varieties of Pears are freer from attack than others; that is, the species, the Pear, varies within itself in this particular. Now, the variety differs from the species in degree only, not in kind; it is variable within itself, and there is no philosophical reason why it may not acquire new habits. More than this, the behavior of many varieties of various plants in reference to disease appears to indicate some such change in character. How many are the old-seedling Pear-trees standing near affected ones, which rarely or never blight, but whose offspring blight as badly as other kinds! The same variety of plant often behaves differently in different parts of the country in reference to the same disease. The difference in amenability to disease in different varieties of the same species is admirably shown in the Tomato. The little-improved sorts, like the Cherry and Plum Tomatoes, are not attacked by fruit-rot, but the large modern varieties are seriously affected. In other words, if we had no large tomatoes we should probably have no such disease as Tomato fruit-rot. Moreover, the rot in any variety appears to depend considerably upon the conditions under which the variety is grown. It is also known that these conditions exert a great influence upon the habit and other characters of the variety. The influences of these conditions or environments upon both amenability to disease and upon variation or modification in the variety itself, must, therefore, proceed somewhat in common. It is conceivable, also, if varieties or individual plants become modified with age in reference to productiveness and qualities of fruit without showing other external modifications, as we have already seen, that they can become similarly modified in reference to their attitude toward diseases.

(4) The standard of merit is constantly rising, and varieties which would have been acceptable at one time may no longer find favor.

Every variety which supplants other varieties, by that much raises the standard of forthcoming varieties. A grape must now be better than the Concord if it is worth introduction. Good varieties are not worth introducing; they must be superior if they are to have permanent value. Yet this fact ap-

pears to be overlooked by many nurserymen and other introducers, and the simply good or meritorious varieties which they put upon the market fail as soon as they become well known. If the standard of excellence is constantly rising, the question at once arises, if amelioration in plants is keeping pace with this uplift. Are there as many superior variations as there were when the standards were lower? This question is too large for discussion here, but it may be said that there are probably enough superior variations to suit our present needs. The greatest difficulty, perhaps, is to distinguish them and to bring them properly before the public.

It may here be said, also, that the chance of a new variety to succeed, other things being equal, is in direct ratio to the novelty of its characteristics—that is, the variety which differs most widely from all other varieties finds the field of least competition, or least impediment to its progress. This same principle pertains under wholly natural conditions. That organism spreads most rapidly which differs most widely from all its fellows. This principle has been called by Darwin the divergence of character. Any new character, or combination of characters, in any organism gives such organism an immense advantage, because it is enabled to occupy places of least struggle. The Lucretia Dewberry, for instance, spread rapidly because it found no similar plant with which to compete; but every succeeding variety of Dewberry will encounter great difficulties, and these difficulties will increase with the augmentation of varieties. The new Japanese Plums are now spreading rapidly. These early varieties, because of their wide distribution, are very difficult to dislodge by later, and even superior, varieties. We all know how hard it was to give up the Isabella Grape, the Lawton Blackberry, the Houghton Gooseberry, the Red Dutch and White Dutch Currants and the Wilson Strawberry. There are, no doubt, varieties of Apples superior to Baldwin and Ben Davis among the 3,000 American kinds, and native Plums superior in all points to the Wild Goose. Perhaps the merits of these obscure varieties have not been sufficiently advertised; but the fact remains that it is exceedingly difficult to dislodge an old variety.

If these arguments are well taken, it follows that the blame for the introduction of unsuccessful varieties is not so much moral dishonesty as a misconception of the merits of the varieties and the nature of the demand which they are to meet; and the remedy for the evil is a better understanding of the points at issue, both by the introducer and the purchaser.

. Notes of a Summer Journey in Europe.—XXI.

A STUDY of the hardy shrub collections at Kew is more of a task than one is likely to find elsewhere in the same latitude, for, besides the large series of species and specimens, unexpected examples are frequently found which are not often seen in other regions so far north. Here, for instance, is the Chinese or Chusan Palm (Trachycarpus Fortunei), which remains out in the open ground all winter, year after year, doing even better in other parts of England; the dark, green-leaved and spiny Discaria (or Colletia) serratifolia, from Peru, appears quite hardy, and other species of the genus Colletia from the same region are sufficiently enduring to be given a place. Such interesting Barberries as B. Darwinii, from south Chili, an erect bush, several feet high, with small holly-like leaves, and B. empetrifolia, from further south on the South American continent, with narrow leaves and dwarf-spreading habit, can both be grown here, but have, thus far, utterly failed at the Arnold Arboretum. This seems somewhat strange, when it is known that what is called B. stenophylla, which is a supposed hybrid between these two South American species, will live and present a fairly decent appearance, although it has never yet blossomed or fruited very freely with us. It also requires protection in winter. We cannot grow any of the hardy species of the beautiful wild rose-like blossomed Cistus yet introduced, but at Kew some of them form very pretty bushes. The possibilities in this climate are further shown by a fine specimen of Arbutus Andrachne, introduced from Greece, which has a stem fully fifteen inches in diameter, dividing into three large branches at three feet from the ground and spreading over twenty feet.

The true Rosa moschata, known in Old World gardens for centuries, and which is also very commonly found under its synonym of R. Brunoni, has not yet proved a thorough success in Boston gardens, but a beautiful specimen at Kew has stems two or three inches in diameter and twenty feet high, and bears flowers and fruit in great abundance. The blossoms of this species are white or yellowish white, the stamens being yellow, and as the flowers are produced in large clusters like those of our Prairie Rose, the plant must be a very beautiful object when in full bloom.

But, while it is possible to grow in the open air at Kew a considerable number of kinds of shrubs and other plants which we cannot get to thrive in America, at a much lower latitude, we can grow a few plants which behave unsatisfactorily in this part of England. Among these the interesting Japanese Cercidiphyllum Japonicum has not yet done well. It is often more or less injured in winter, perhaps, because the seasons are not warm enough to thoroughly ripen the wood. With us this pretty foliaged plant is thoroughly hardy, and gives every promise of becoming as large a tree as it does in its native home. What appeared to be a form of the true Lespedeza bicolor was seen here, apparently with very little more of a woody or shrubby nature than the more familiar L. Sieboldi (which has been commonly known as Desmodium penduliflorum), while in our climate it forms a distinctly tree-like shrub. The same peculiarity was noted in our so-called Lead Plant (Amorpha canescens), which did not appear to be any more of a shrub than Lespedeza Sieboldi, although under favorable conditions it does grow up to have quite a woody stem. Its close ally and companion in the genus, the False Indigo, Amorpha fruticosa, is, of course, perfectly hardy, and there are now numerous slight variations or forms of it, procured by selection, which have been honored by having names in Latin form given to them. These peculiarities are generally so trivial and unimportant that it seems a mistake to cumber the synonomy on account of such slight deviations from an accepted type. If the formal naming of every variation or modification of trees and shrubs in cultivation was generally followed, there would soon result such a hopelessly long catalogue as would be a real cause of discouragement to every amateur planter. And if an enthusiast does raise a seedling which he thinks has some distinctive merit, it would be better to give it some other than a Latin name, in the same form as is usually given to species or self-perpetuating natural varieties. For instance, most people will agree that the custom of giving such plants as the new garden Azaleas and Rhododendrons some popular name is better than affixing a Latin appellation, which might cause a tyro to think of it as a new species.

I noted the curious Castanopsis chrysophylla of California growing here, being fairly hardy and represented by an example about four feet high, evergreen, and producing flowers, but no fruit.

A large portion of the surface of the Arboretum, as well as of the Botanic Garden at Kew, is covered by well-kept lawns. Few or no reminders to "keep off the grass" are to be seen, and visitors are at liberty to roam almost everywhere, so that the different specimens and groups of trees and shrubs, the latter in cultivated beds, may be seen closely and on all sides. In other areas the grass is allowed to grow, and among it large numbers of bulbous and other plants come up and bloom in their season. It is a most commendable feature that in the whole establishment there are no public carriage-roads, and therefore no annoyance or confusion of a parade of vehicles, which could only be afforded and enjoyed by a small portion of the community. Those who wish to see Kew, to enjoy its rich plant collections, or to study them, must walk; and it is best for the good order of the place as well as for the obtaining of a quiet and reposeful effect that it should be so ordered. Wheeled chairs are provided at some of the various gates for visitors requiring them. Well-ordered paths lead to the chief groups and objects of interest. The visitor of a short day is not likely to find time to go over them all, and in choosing those which will give the most concentrated pleasure and instruction, the path leading to the pretty rock-garden should certainly not be omitted. Although originally constructed in a flat and unpromising situation, it has been so skillfully and well arranged as to give new pleasure at every turn. A visit to it, especially in spring and early summer, must afford great delight to every lover of flowers, and especially of that class of plants known as Alpines among horticulturists.

The great glass-houses and their rich collections, in beautiful order, tempt one to spend more time there than can perhaps be afforded, and every visit reveals something notable not seen before. The policy of an aggrandizement of a great collection of species for the sake of a long list of all the species possible to be obtained, is not now followed at Kew so much as the selection of all that is best and most desirable in every class of plants which are amenable to cultivation. In earlier days it was, perhaps, necessary to bring together as many species as could be obtained in order to make a judicious weeding out and selection possible.

Next to the living plants, the beautiful collection of pictures of flowers and vegetation, painted and presented by the late

Miss Marianne North, are most instructive. These are preserved in the North Gallery, a building removed from all others and also the gift of Miss North. This collection embraces about 850 subjects, and represents nearly a thousand identified species of plants belonging to nearly a hundred and fifty natural orders. It gives a remarkably good idea of the general character of the vegetation of different parts of the globe. The pictures were nearly all painted in the countries inhabited by the plants, and during journeys covering a period of over twelve years.

Three separate museums are open to the public. In these are exhibited well-preserved specimens of plants, woods and plant-products, the collections displayed having chiefly an economic interest. They evidently furnish a very interesting and important series of object-lessons to great numbers of visitors and seekers after information. The great library and herbarium, which occupies still another separate building, though necessarily not open to the multitude in the same free way as are most of the other departments at Kew, is available to all real students of botany. The Herbarium contains vast numbers of types, and no systematist or monographer can afford to work without reference to it.

Those interested in public museums, and botanical displays in them, will find an easily accessible and a very interesting and instructive one in the Natural History Museum, at South Kensington, which has been arranged under the direction of Dr. Carruthers.

Arnold Arboretum. *J. G. Jack.*

New or Little-known Plants.

Agave angustissima.

IT will be of considerable interest to the readers of GARDEN AND FOREST to know that Dr. Edward Palmer has collected what seems to be the little-known Agave angustissima * (see figure below). The plant is entirely unknown to the growers of Agaves, and is only represented in herbaria by the type specimens in the Engelmann Herbarium at the Shaw School of Botany, St. Louis.

The following note from Dr. Engelmann, published in the *Transactions of the Academy of Sciences*, St. Louis (vol. iii., p. 306), contained all the information that we have previously had respecting this plant:

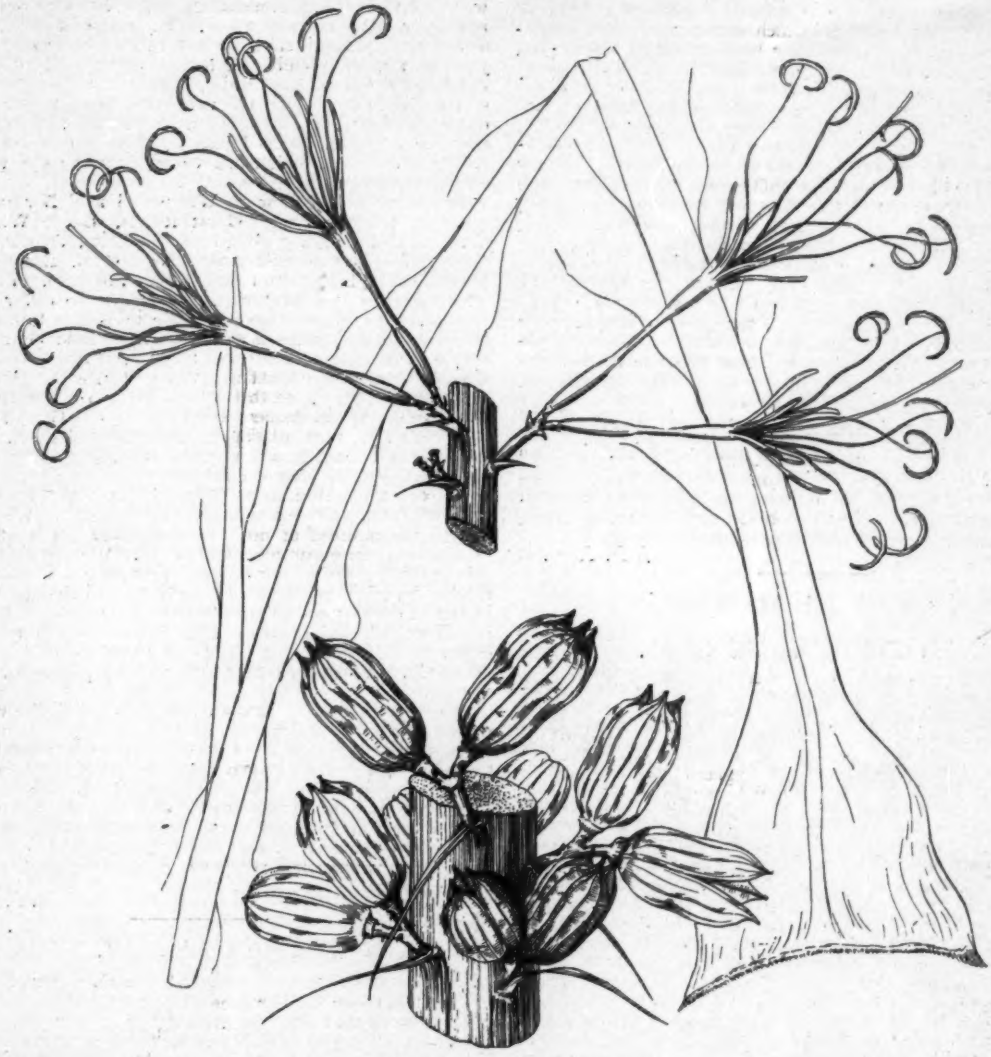

Fig. 1.—Agave angustissima.

"Dr. Gregg collected, near Ocotillo, direction of Tepic, in western Mexico, leaves of a plant which he says bears a scape

* Agave (Littæa) angustissima Engelm. Acaulescent, leaves fifteen to thirty in a dense rosette, straight, linear, twelve to twenty inches long, four to five lines broad above the inflated base, flat on both sides, the edge splitting off in fine threads, the end spine slightly pungent; peduncle twelve feet long, including the dense spikes; flowers in pairs, corolla yellow; tube slender, cylindrical, eight to nine inches long; lobes linear, six lines long; stamens purple; filaments more than twice as long as lobes; anthers becoming curved and forming almost a complete circle; fruiting peduncle very short or none in the axil of a long setaceous bract (one to two inches long); pedicels, one to two lines long; capsule glabrous, nine to ten lines long. Growing among rocks, with little soil, along the margin of the bay at Manzanillo, December 1 to 31, 1890 (No. 1070).

five to six feet high, and which, like many narrow-leaved Agaves and Yuccas, was called Palmilla by the natives; unfortunately, no flowers came along, but, as it seems to be an undescribed Agave, it may be designated as A. angustissima; leaves, two to three feet long, two and one-half lines wide, convex on the back, filamentose on the margin, narrowed into a short (two and one-half lines), stout, triangular, brown spine. It seems allied to A. filamentosa, Salm., which, however, has much shorter and wider leaves. The form of the terminal spine precludes its being taken for a Yucca."

Dr. Palmer's plant reaches twelve feet in height. The leaves are numerous in a dense rosette, the flowers, in pairs, as in A. Schottii, yellow, with linear lobes. I submitted this species to Mr. J. G. Baker, of Kew, as probably a new species, who wrote me as follows: "We have nothing like this either in the herbarium or the garden; its nearest affinity is evidently the imperfectly described A. angustissima, of which we have no specimens."

With this suggestion I applied to Dr. William Trelease for the loan of Engelmann's plant. Through his kindness I have been able to examine the type of this species. I have little hesitancy in referring my specimens here. The type specimens, however, consist of only a few leaves cut off above the enlarged base. With such material, any comparison is very unsatisfactory, but until specimens can be obtained from the original station, and it is proved to be different, this plant should stand for A. angustissima.

Dr. Palmer's plant was collected at Manzanillo, December 1 to 31, 1890 (No. 1070). The plant is common, growing among rocks, with little soil, along the margin of the bay. I have some small plants growing in the greenhouses of the Department of Agriculture. Seeds, when planted in pans, germinated in seven to ten days. Seeds have been sent to Kew and to the Shaw gardens, but no report has yet been received. We still have some seed remaining, and any person wishing to grow the plant can obtain the seeds by writing to Dr. George Vasey, Botanist of the Department of Agriculture.

Washington, D. C. *J. N. Rose.*

Cultural Department.

Onion Culture in the South.

I HAVE for years been trying to convince our southern people that better crops of onions can be grown here from the seed direct, the first season, than by the use of sets. From Maryland southward it has for generations been thought that, while at the north onions can be grown from the seed in one season, everywhere southward the only way to get good crops is to plant the sets raised the season before. So general is this impression that the growing of these sets has been a large part of the seed-growers' business, and immense quantities of them are still sold, both in fall and spring, all over the south. The buying of sets for a large crop, or the raising of them the season before, is a very expensive matter and largely reduces the profit of the crop. Of course, the Potato Onion, which is largely grown for early marketing, must always be grown from sets, as this is the only way it reproduces itself. But the Potato Onion only comes in to supply a temporary scarcity of onions in summer. All dealers know it is a bad keeper, and it soon disappears from the markets when better onions come in. The southern market is still largely supplied in winter with onions grown at the north, while equally good and solid onions can be easily grown here.

The introduction of the Italian and Spanish onions first demonstrated the fact that Onions properly treated would make a good crop here from the sowing of the seed. Of course, Onions sown here in April, as is done at the north, will only make sets, as the season of cool weather needed for their growth is then too short. But when the seed is put in the ground here in February, the success is as certain as is that of almost any other crop. To demonstrate this plainly for the benefit of our people, I sowed on our station grounds last spring a variety of Onion-seed both of the Italian varieties and of some of the sorts commonly grown at the north. All made a good crop, notwithstanding the fact that the only land I had, available for the purpose, was a dry hill-slope of hard, red clay of very moderate fertility, which had never before been used for vegetable culture. This land was liberally dressed with stable manure and about 700 pounds of ammoniated superphosphates, distributed in furrows under the Onion-rows, the soil being then bedded over the fertilizer by throwing a furrow from each side over the first furrow, making a sharp ridge, which was flattened down nearly level, and the seed-rows laid out upon it. This bed, slightly elevated above the surrounding surface, made the first cultivation more easy than if the seed had been sown on the level surface, and made horse culture possible from the start. This is the most economical plan with most garden vegetables raised from seed where land is the cheapest thing that enters into the problem, as in most parts of the south. The seed was sown early in February, and was scattered quite thickly, the intention being to transplant all thinnings. At the same time seed was sown in a cold frame, under glass, in order to have plants ready for transplanting earlier. The result showed but little advantage in this. Had the seed in the frames been sown January 1st, the result would have been quite different, we think, as we should have had sets ready to transplant before the end of February. While all made a fair crop, the transplanted onions were larger than those not so treated. This was true not only of the Italian and Spanish sorts, but also of the New England varieties, which are not usually thought to be benefited by the process.

The varieties sown were White and Red Bermuda, Mammoth Pompeii, Queen, Giant Rocca, Large White Italian Tripoli, Giant White Garganus, Barletta, Southport White Globe, Yellow Globe Danvers, New Opal, Early Flat Red, Wethersfield Large Red and White Portugal. The Barletta grew as large as the Queen, and seems to differ very little from it. The White Portugal made the finest bulbs of any of the flat white sorts, with the White Bermuda nearly as good. The Red Bermuda grew to the largest size of any of the flat red sorts, but the New Opal is heavier and more solid, and promises to keep better. Of the Globe sorts the Southport White Globe made the most handsome bulbs. The Giant Rocco, too, was very fine, particularly the transplanted ones. The Red Wethersfield made fair-sized bulbs of great solidity, and promises to keep well. None of the white sorts promise to keep well except the Southport White Globe. We believe this variety will be found very valuable in the south. We were very much disappointed at not being able to get the Prize-taker Onion at the time our seed was sown. We are now pursuing this investigation further by sowing the seed in October very thickly for the purpose of transplanting in February. Unfortunately, the intense drought which has prevailed this fall has interfered with this, and we fear the plants will not get start enough to do well. We will make a further sowing in frames about Christmas, so as to make sure of plants for February setting.

At our State Fair in October we exhibited all the varieties of onions grown, and it was amusing to hear the expressions of surprise on the part of farmers and gardeners when they were told that all had been grown from seed the first season. We venture to predict that more Onion-seed will be sown here the coming spring than ever before. Had our seed been in more open and fertile soil I feel sure the crop would have been surprisingly large, and in the mellow coast-lands of this state, where the trucking interest prevails, the crop ought to be made a very profitable one.

Raleigh, N. C. *W. F. Massey.*

Cape Oxalis.—IV.

THE last of this series of notes upon Cape Oxalis is to describe those kinds which cannot be said to form a group of species which resemble each other in any noticeable degree. Oxalis ceruna is, perhaps, the best known of these, either under its own name or as O. lutea of most of the catalogues, or as O. caprina, under which name it is figured by Burnett. This is so common as to need no description, though it may be worth while to advise those who are about to buy dry bulbs of it to test them by pressure with thumb and finger, for the interior of these bulbs often shrink in drying, owing to too short a growing season. There is thus left a shell of fair size, while the living part is no larger than a millet-seed. This condition is betrayed by the cracking of the bulb under the pressure of thumb and finger. The hollow bulbs may also be told by their dull appearance, the sound bulbs being somewhat glossy, but it takes an experienced eye to detect the difference. This species has also a double form, not by any means as attractive as the single one, and not as easy to get, for most of those who advertise the

Fig. 2 Avenue of Live Oaks (Quercus Virginiana), Chelsea Plantation, Beaufort County, South Carolina.—See page 2.

double have really only the single one to sell. The fault is probably not theirs, but that of the growers, who might easily separate the single from the double when the plants are in bloom. The bulbs of the two varieties are exactly alike, but the leaves of the single kind have the brown specks scattered, while in the double sort they are clustered at the base of the leaflets. O. cernua will endure the winter in the open ground with a slight covering, but will not flower in the following spring, therefore pot-culture is the best for it.

Oxalis Bowiei is one of the best-known, one of the oldest in gardens, and one of the finest of all. It is very distinct from all others in its clusters of large rosy flowers, broad, fleshy bright green leaflets and horn-shaped bulbs. The bulbs should be selected for their thickness, not their length. If a plant of Oxalis be turned out of its pot while in full growth it will be found to have thick, translucent roots; these are used by natives of South Africa and South America as articles of food. I have eaten the roots of all the kinds of Oxalis which I have grown, and find those of O. Bowiei by far the best in flavor, being very sweet and sugary and devoid of the smoky taste which makes many so disagreeable. O. Bowiei should be planted much earlier than it generally is; I sometimes put a few bulbs into the open ground early in July and have flowers in abundance from the middle of August until October. Few garden plants can surpass O. Bowiei when so treated.

Oxalis Piottæ is probably at once rarer and prettier than any other kind. I include it among Cape species with some doubt. It is the subject of plate 1817 of the *Botanical Register*, whose description says, "It is said to be a native of the Cape of Good Hope." It is not included in the list of Harvey and Sonder s "Flora Capensis," nor can I find any mention of it except in the place already referred to, which quotes Colla as authority for the species. The editor of the *Register* received it from a lady to whom it had been given by Professor Savi, of the Botanic Garden of Pisa, and it seems to have been kept there very closely, for after searching for it through all the catalogues I could find for twenty years I found it at last in the list of the Italian firm of Dammann & Co. The figure spoken of is only fairly accurate. The foliage, as I find it, is not bright green, but strongly glaucous; it grows very thickly, so that a pot of it much resembles a sod of close white Clover, though the leaflets are much smaller; the flowers are large, about an inch and a half across, of a bright salmon color, entirely unlike those of any other species I have seen. The dense, thick clustered, blue-green foliage and the large, attractive and distinct flowers render O. Piottæ, on the whole, the most pleasing of my collection, though, probably, a part of my appreciation of it may be due to its having been obtained after so long a search. The bulbs are small and very curiously covered with sharp, interlacing ridges. There is no doubt that the species belongs to some part of Africa, for the bulbs of the New World species have a structure of their own, so peculiar that they could be distinguished in the dark.

Oxalis bifida is another very pretty kind. Its manner of growth is somewhat rambling; at the end of the long leaf-stalks thick tufts of leaves appear, composed of three sharply notched, vivid green leaflets. The flowers are bright pink, and very pleasing, but not very freely produced. The brilliantly colored, finely cleft foliage is the chief attraction of the plant. O. bifurca has purple or lilac flowers of medium size; its leaflets, arranged in threes, are so deeply notched as to be very nearly of the shape of a capital Y.

Oxalis caprina (of Linnæus) is a species of much beauty, bearing small, bluish purple flowers, with yellow centres, in great abundance. The plant is much branched, and the sharply cleft leaflets, resembling the print of a goat's foot, suggested the name.

Oxalis compressa much resembles O. cernua, but is of a more compact habit, and the leaf-stalks are much flattened. The flowers, somewhat deeper in tint than those of O. cernua, are strongly and agreeably perfumed.

Of Oxalis imbricata I have the double-flowered variety only. It is a low-growing trifoliate kind, whose blossoms, unlike those of the double O. cernua, are very pretty and well worth having. I owe my possession of this to the kindness of Mr. Watson, of Kew. One or two other species are sometimes double-flowering, but I have so far seen only these two.

Oxalis incarnata was formerly sold under the name of O. luculla. This species has much the appearance of a tree in miniature, in the manner of branching resembling a White Oak. The flowers are freely produced, and are so faintly pink as to seem white unless looked at closely. If the plant grows in the shade the under side of the leaves is deep violet or purple. The bulbs are long and of nearly even thickness until near the tip, and are covered with a loose, yellowish skin.

Oxalis filicaulis is given by Harvey and Sonder as a synonym of O. bifida, but the species which I have under that name is quite distinct and much less attractive. It has no great interest, and I omit any description.

Oxalis Comorensis, though not a Cape species, is certainly African, and is most probably from the Comoro Islands. I have never been able to find it in any botanical work. I obtained it from E. G. Henderson, of London, more than twenty years ago, and lost it after cultivating it some years; it is a very curious kind, inasmuch as the lower surface of its large round leaflets is covered with a dense brown fur, which, projecting from the edges, gives the plant a very fantastic appearance. The flowers are large and pink.

Canton, Mass. *W. E. Endicott.*

Woody Plants for Winter Flowering.

A VARIETY of stock is required in order to keep the conservatory bright with flowers during the dull winter months, and while much can be done with Primulas, Cyclamens, Begonias and other soft-wooded plants in conjunction with various forced bulbs, yet something more is needed to vary the arrangement. Among the plants adapted for such use, none are more showy or more lasting than the various varieties of Euphorbia pulcherrima, the type producing the largest bracts, while the variety known as Major gives a head of moderate size and of crimson shade, rather than scarlet. The double variety also forms very large heads, and of brilliant color, and, from its highly decorative character, quite justifies the enthusiasm with which the collector, Roezel, presented it nearly twenty years ago. An advantage also possessed by these Euphorbias is that they can readily be stored away beneath the stages after their blooming is over until the spring or early summer, this season of rest being requisite to their welfare. Euphorbia fulgens is another valuable subject for winter decoration in the conservatory, and requires very similar treatment to E. pulcherrima, though during its growing season this plant is more impatient of extremes of drought and moisture than the other. Both species are readily propagated from cuttings either of hard or soft wood, the latter needing more heat to enable them to root, and also more attention to prevent damping off.

Plumbago rosea-coccinea is also a valuable shrub, bearing quite large, bright red flowers. This plant flourishes in a somewhat higher temperature than the well-known P. Capensis, and is stronger in growth than the latter, but like it in needing no special culture. P. Capensis is also admirable during the latter part of the winter and early in spring, for while this plant is considered a summer bloomer, yet it is not closely confined to one season, and its pale blue flowers are acceptable at any time.

Reinwardtia trigyna is another useful plant at this season, and, with proper attention during the summer, in the matters of watering and potting, can be made into a very attractive specimen for decorating the conservatory in winter. This plant is sufficiently familiar to most growers to require no special description here, and while its bright yellow flowers are not very lasting, yet they are produced in such an abundance that the plant retains its beauty for a length of time. R. trigyna is best grown outdoors during the summer, in a frame or beneath a lath shelter, it being less liable to the attacks of red spiders when grown in this way, providing it is not permitted to get too dry.

Erica hyemalis is probably the easiest member of this extensive genus to grow, since it can be rooted without much trouble in the spring, and, unless abused, it will form nice little bushes by the following winter, and will produce long sprays of delicately tinted little flowers during the winter and spring. This is really a charming plant, so graceful in habit and profuse in flowering, and the cut sprays can also be used to advantage. In short, it is a plant deserving of much wider use.

Cytisus racemosus should not be omitted, for when properly grown it may be brought into bloom quite early in the spring or rather late in the winter. To have this plant in condition for early flowering, the growth should be well ripened out-of-doors during the summer; young plants that have been rooted early in the spring should be shifted on as necessary until they are in six-inch pots, when they should be plunged in a bed of coal-ashes. Naturally grown plants, that is, with only enough pinching to make them moderately bushy, are the most graceful, though some growers trim them in with shears until a perfectly round head is formed, after the manner of an Azalea.

The Centradenias are old-fashioned plants of considerable merit for winter decoration, two species in particular being of value, namely, C. grandiflora and C. floribunda, the first-

named being the stronger-growing of the two, and having leaves some two or three inches long, bright green above and reddish beneath, with pink flowers, produced in clusters. C. floribunda is smaller in all its parts, the flowers being white or pinkish, and the leaves dark green, the plant making a compact little bush and flowering most abundantly. Both are very readily propagated by means of cuttings, and of the easiest culture.

Tabernæmontana Coronaria and its double form are also desirable plants for a warm conservatory, their pure white and fragrant flowers reminding one of small Gardenias. The plants also bear some resemblance to Gardenias, the foliage being very bright and glossy, and, as cuttings root readily, there is but little difficulty in securing a stock.

Holmesburg, Pa. *W. H. Taplin.*

Diseases of Gloxinias.

DURING the past season Gloxinias in France have been considerably injured by various diseases. The exact nature of the troubles does not seem to be very well understood, as some are supposed to be due to fungi, and others to bacilli. The remedies proposed are not always efficient, but good results appear to follow the use of some of them. The presence of so much disease can partially be explained by the fact that when the young plants are moved from the propagating-house to their flowering quarters the sudden change in temperature weakens them and lowers their powers of resisting disease. The change should be made as gradual as possible. Another suggestion is found in the fact that Gloxinias which are grown in new houses, or in houses before unoccupied by them, are quite free from disease, while their successful cultivation is an utter impossibility in houses which have been filled by them year after year. Great care in growing only healthy plants will undoubtedly soon become a very important factor in their cultivation, for these plants now appear to be the prey of an ever-increasing number of enemies.

Eugène Vallerand mentions four diseases of Gloxinias in *Revue Horticole*, and gives brief directions for combating them. One disease that has occurred more or less during the past thirty years is known as the grise. It attacks strong as well as weak plants. It first appears in the form of spots upon the leaves; these extend, and the bloom is soon destroyed. Finally the entire plant succumbs. In some places this disease is so serious that the cultivation of the plant has been given up. No good remedy has yet been recommended.

Another disease, which is sometimes very serious, is frequently found in the fall upon plants which were started in the spring. It is first seen when the nights begin to get cooler. It works upon the foliage, and appears to dry it, so that it soon becomes very brittle. The disease spreads rapidly, and in a few days will attack many frames in which the plants are kept. The best remedy is to keep the plants in a warm temperature, as the trouble, at least, is partially due to cold.

Gloxinias are also subject to the attacks of a third disease, but this is much less serious. Like the preceding, it is found upon grown plants, particularly when in full bloom, but only in certain places. The stem of a branch, leaf or flower is suddenly attacked by a rot, and unless something is done the decay will extend to the centre of the diseased part. The remedy is to cut away all unhealthy parts as soon as the injury is discovered.

The fourth disease is also a rot, found principally upon mature plants. The stems blacken and decay, and the entire plant soon succumbs. All diseased parts should be cut away.

Cornell University. *E. G. Lodeman.*

Irises and Their Cultivation.—III.

IN March or early April, the Persian Iris, I. Persica, begins to open its flowers while the leaves are still inconspicuous. This is an old variety known to Parkinson as the Persian bulbous Flower-de-luce. While interesting and of a dainty order of beauty, it is quite inconspicuous in a border. The color is a very pale blue with a very dark purple blotch at the end of the blade of the falls, and it has an orange crest. It is extremely dwarf, and, in an unfavorable season, will scarcely clear the surface of the earth, where it appears as an Orchid-like waif, apparently too frail for its exposed position. With genial weather it will rise two or even three inches above the soil.

Iris Caucasica blooms at the same season. While it is a distinct type, the form flowered by me has little garden value, the flower being a dull washy yellow. There are said to be flowers of a more satisfactory hue. Iris orchioides is a species very close to I. Caucasica; with this and I. Sindjarensis I have had but little experience, the bulbs not yet having flowered. These Irises are all of the same botanical section. They have thick, fleshy, persistent roots, and for this reason should not be moved unnecessarily or kept out of the ground long. It is said they do well in a soil rather more stiff and moist than the other bulbous kinds.

The Vartans Iris (I. Vartani), from Palestine, seems a hardy, reliable producer of long, green leaves, but as it is due to flower in November, it must either be removed to shelter or await the opportunity of a mild season to show its flowers here. I. Tingitana is also one among several others of the bulbous Irises the flowers of which have so far eluded me.

Iris bulbs may be secured in late summer, being mostly dormant in August. These are known as summer-ripe bulbs in the gardens. It is, of course, good practice to plant them as soon as secured, burying them in an envelope of sand. It is well to plant the early-flowering kinds where they will be somewhat retarded, if possible, but it is difficult to find a warm and rather dry spot where they will not come on in the first warm spell of the year. After flowering, the greatest care must be taken to ripen them up for the next year by preserving their foliage in growth as long as possible, as on this will depend their successful flowering another season.

The Snake's-head Iris (I. tuberosa), or, properly, Hermodactylus tuberosus, while neither bulbous, nor properly an Iris, is curious and interesting with its greenish falls and deep brown markings. It is, however, of little garden value, and by no means a reliable flower-bearer in this section.

The Moræas and Vieusseuxias, which in the garden are rated as Irises, are, properly, greenhouse-plants, though, in a favorable season, the Peacock Iris (I. pavonia) will live out and flower in this latitude. This variety is a gem for pot-culture; its small flowers, though fugacious, are beautiful with the white falls and curious peacock-blue eye. Even more fugacious are the flowers of Moræa iridioides (I. moræoides), though the charming little pale lilac blooms, with broad falls and high standards, are miniature fac-similes in form of the large-bearded Irises. The strongest-growing plant of this section is M. Robinsoniana, the flowering of which at Kew was illustrated in GARDEN AND FOREST (vol. iv., p. 355). The time and attention given to the culture and flowering of this plant also illustrates the fact that in the garden patience is often necessary. To the fancier of odd choice flowers the Moræas and Maricas, a group with Iris-like flowers, are very interesting, and will repay the trouble of cultivation. They are fairly numerous, as the list of names in the catalogues show.

Elizabeth, N. J. *J. N. Gerard.*

Foreign Correspondence.

London Letter..

PLANT CERTIFICATES.—The practice of awarding certificates to plants, to indicate their value in horticulture, was instituted many years ago by the Royal Horticultural Society. As a rule, every plant which receives this certificate does so after having been submitted to the judgment of a committee of experts representing the best English practice in horticulture. The Society has prepared a complete list of all the plants, flowers, including Orchids and Ferns, fruits and vegetables which have been awarded certificates from the year 1859 to December, 1892, and offers it for sale at two shillings and sixpence per copy. This list will be valuable to all who are interested in the introduction and history of garden-plants, as it comprises almost everything of special value introduced in the period here named. Other societies, such as the Chrysanthemum and the Botanic Societies, award certificates, but the certificate of the Royal Horticultural Society is by far the strongest recommendation that a plant can receive in England.

A MONOGRAPH OF BULBOUS IRISES, by Professor Michael Foster, F. R. S., will shortly be published by the Royal Horticultural Society. Professor Foster has paid special attention to the introduction, cultivation and classification of Irises of all kinds, and in his garden at Shelford, near Cambridge, he has collected together all the species and varieties procurable. He unites with his professional duties as a physiologist a keen love of practical horticulture, taking an interest, not merely in his special hobby, the Iris family, but in gardening of every description. The present flourishing condition of the Royal Horticultural

Society is due very largely to the efforts of the Professor and a few other zealous horticulturists at a time when the very existence of the Society was threatened. Professor Foster's contributions to the history and culture of bulbous Irises will be welcomed by all who are interested in this most delightful, if somewhat refractory, section of one of the most beautiful of all garden flowers.

The Orchid Review.—We are to have a monthly illustrated journal, devoted exclusively to Orchids, and edited by Mr. R. A. Rolfe, of Kew, and Mr. Frank Leslie. According to the prospectus, it will be conducted on broad and independent lines as a general repertorium of Orchid lore. Among the subjects treated of will be found, descriptions of new species and hybrids, notices of collections; portraits, all reproduced by photographic process; cultural notes, geographical notes and sketches of Orchids at home, reports of meetings, etc. The first number will be published on January 1st next, price one shilling. Monsieur L. Linden, of *L'Horticulture Internationale*, Brussels, has issued for several years now a similar publication (*Les Orchidées*) to that here announced, and Monsieur Godefroy Lebeuf, of Argentueil and Paris, also publishes a paper, the *Orchidophile*, which is devoted to Orchids exclusively. In addition to these we have the three large "Albums," issued monthly: one from St. Albans, *Reichenbachia;* another from Holloway, *The Orchid Album*, and the third from Brussels, *Lindenia*. Pretty strong evidence these of the popularity of Orchids in Europe. Never before in the history of horticulture have there been six periodicals devoted exclusively to one family of plants.

New Orchids.—Sophro-Cattleya Calypso is a very beautiful hybrid of so-called bigeneric extraction, its parents being Sophronitis grandiflora and Cattleya Loddigesii. It was shown in flower this week by Messrs. J. Veitch & Sons, its raisers, and was awarded a first-class certificate. The pseudo-bulbs and leaves are more like those of the Cattleya, but smaller and more slender. The flower, too, is like the Cattleya in size and form, but colored deep rose, with tips of bright purple on the three-lobed yellow lip.

Lælia Finckeniana is a supposed natural hybrid between L. albida and L. anceps. It has the pseudo-bulbs and habit of L. albida, but the flowers are more like those of a small form of L. anceps alba; they are white, with a blotch of purple on the front lobe of the labellum.

Cattleya labiata alba is a white form, very like the white C. Gaskelliana. The flower is pure white, save a yellow shade in the throat. It was shown by Messrs. Sander & Co., and obtained a first-class certificate.

Twelve new Hybrid Cypripediums were exhibited this week, but C. Arite (concolor × Spicerianum) and C. Johnsonianum (nitens × Lawrencianum) only obtained certificates.

Pleurothallis punctulata was described by Mr. Rolfe in 1889 from a plant introduced by Messrs. Veitch from New Granada in 1885, and now in the collection of Mr. R. I. Measures, who exhibited it in fine health, and flowering freely this week. It is about eight inches high, with erect, leathery, lanceolate leaves clothed with a white meal at the back. The flowers somewhat resemble those of a Restrepia antennifera in size and shape; they are light yellow, spotted with brown-purple, the lip, which is large, being deep maroon. The flowers are produced at the back of the leaf-blade. This is certainly one of the best of the few good species of Pleurothallis known.

Masdevallia McVitiæ is a hybrid between M. Tovarensis and M. Veitchii. It has leaves like the former parent and large rosy lilac flowers on a scape nine inches long. It is remarkable as a curious hybrid, and is likely to prove a good addition to the cultivated Masdevallias. It was raised in a garden at Stone, Staffordshire, the seeds having been sown about twelve years ago. It was certificated.

Cattleya Alexandræ was shown in flower by Messrs. Linden and Mr. B. D. Knox, the former sending a three-flowered scape, the latter a plant with a single flower. The committee reserved its opinion, and asked to see more of this Cattleya, in the hope that better forms may be forthcoming. So far it has disappointed expectations. The flowers shown were darker than that produced at Kew, but in no way more attractive.

The Christmas Rose.—This is now beautiful in the wild garden at Kew. The ground is thickly carpeted with the brown leaves which have fallen from the Limes and Elms and other trees about, and the pure white flowers of the Hellebore are in numerous crowded clusters, rising a few inches above the leaves. Helleborus niger, in a pot or grown singly in a border, is not to be despised, but when it is planted in hundreds in such a position as is here described it is a glorious winter picture. We do not make nearly enough use of this plant. It thrives under trees, asking only for a loamy soil to root into and an annual top-dressing of a good compost, such as loam and manure. With these conditions it increases and multiplies, and in winter, if the weather in December be favorable, as it has been this year, it flowers abundantly. Certainly the Christmas Rose is one of the most valuable of all hardy plants here, and to enjoy its full capabilities it must be liberally treated and planted in a position where it can be seen to the best advantage. There is surely something remarkable in the fact of this plant developing its large attractive flowers in midwinter, when vegetation generally in the north is apparently fast asleep.

Berberis vulgaris.—This old garden-plant is the most attractive shrub outside at this season. For more than a month past some bushes of it, ten feet high and as much through, have been beautiful sheaves of long, elegant branches crowded with bright crimson coral-like berries. The birds often prevent the effect such shrubs would make by devouring the berries as they ripen, but in places where the birds are disturbed the Barberry assumes its full winter beauty. The sprays of berries are most decorative when cut and arranged in vases, etc., and they keep fresh several weeks in water. A charming Christmas picture, which, in England, at any rate, could be easily obtained, would be some bushes of this Barberry growing out of a carpet of Christmas Rose, always assuming that the birds did not spoil the arrangement.

Begonia, Winter Gem, is well-named. It is one of the Socotrana hybrids raised by Messrs. Veitch several years ago, who exhibited a group of it last Tuesday. It is B. Socotrana, but with larger flowers of the most brilliant crimson color. Flowering as it does in midwinter, and inheriting from its Socotran parent the valuable character of holding its flowers till they wither, this Begonia is certain to become a general favorite. Mr. Heale, the raiser of these hybrids, informs me that he has a new hybrid which is even better than Winter Gem, and which also has been obtained from B. Socotrana.

London. *W. Watson.*

Correspondence.

Grapes in Winter.

To the Editor of Garden and Forest:

Sir,—I have been making some experiments in keeping grapes in open baskets set in a cool room, and send you a few notes. For November 15th I have recorded:

The Concord, if carefully handled, will keep much better than I had supposed. At this date it is in good condition, but lacks somewhat in flavor. The thin-skinned sorts are not decaying any more than the thick-skinned ones, unless the grapes are bruised. Diamond grows in beauty and improves in flavor from keeping. It cannot be distinguished in color from Golden Pocklington, and does not shrivel easily. Vergennes is skinny and seedy, but keeps very well from rot. I do not care for it as a table fruit. Amber is a wonderful grape to keep. The bunches are as fresh-looking as when picked, but the acidity is such that few will eat it. It does not quite ripen in this latitude. I recommend that farther south it be tested for a winter grape. The bunches are very handsome; color, green. Herbert is an ideal grape up to date, and is a favorite with everybody. It will keep if not eaten up. It is the very best of our black grapes for keeping. Niagara is in good order as yet, and

sweet, but loses flavor. It is not a late keeper. Duchess is a better keeper than I had supposed, but it must not be left too long on the vines, for in that case it cracks and decays at once. Diana is not well ripened this year, but is a late keeper, and about as good a grape as we have. Not one of all my grapes is in finer condition than Goethe. It does not quite generally ripen here, but if grown on long vines on the side of a house or barn it becomes a fairly good fruit. Then, if put away, it improves in color and flavor. The Iona has exactly the same tendency as Goethe; it improves after picking, even taking on color. It is very thin-skinned, and requires careful handling, but keeps when so handled admirably. Jefferson is another grape that improves after storing, and only for that we must discard it from our latitude. Lady Washington is also better than when gathered, and is in fine order. Ulster is one of our really good keepers so far. Pocklington is in splendid condition and fine flavor. Gaertner is showing no signs of decay. August Giant is keeping so far very well.

For December 15th I append the following notes: The grapes in best condition at this date are Diana, Amber, Goethe, Vergennes and Gaertner. Those somewhat shriveled are Herbert, Ulster, Jefferson and August Giant. Those that have shown decided signs of decay are Niagara, Concord, Diamond, Duchess, Lady Washington and Iona. Of these it is hardly worth while to expect to keep Niagara, Concord and Duchess in good order beyond December 1st. If now selecting a list for late winter storage, I should, considering quality and tendency to resist decay, select Diana, Goethe, Herbert, Gaertner, Ulster, Vergennes and Pocklington. For early winter I should add Iona, Martha and August Giant. The last of these is very fine, only for its tendency to shrivel.

This happens to be my present list, but on previous occasions I have tested Wilder, which kept admirably, and might be classed about with Herbert, although shriveling rather less quickly; Worden, which keeps about with Concord, but loses flavor; Diana I have kept until April in cool drawers.

These notes are made of grapes which are in no way specially prepared for keeping by packing or by waxing. The bunches are carefully picked, carefully examined, and all decaying or loose grapes removed and laid loosely over the bottoms of clean new baskets. They are then placed in a cool dry room. I have had still better success in cool dry drawers. As the grape is now recognized as an exceptionally wholesome fruit, I see no reason why we should not store it in large quantities. I have had enough for a generous daily supply, and shall not be without abundance until the new year. I find, on looking over all my baskets, that I have misjudged one variety, the Diamond, for two baskets from our vineyard are in splendid condition at this date. The baskets in front, from which we had eaten, came from an old vine somewhat shaded, and the fruit lacked the perfect color and sweetness of the others which had the full sunshine. It must be borne in mind that a grape may not be able to show its real qualities as a keeper unless grown in a choice location. I think it quite certain that a well-ripened Diamond is one of the best keepers we have. I am glad this is so, for this grape has failed to meet our expectations both as to prolific bearing and early ripening. Amber I have not included in my list of select latest, only because it has an acid that makes it unacceptable to most consumers. Personally I like it.

My experiment was not intended to see how late I could keep grapes, but to ascertain which were best keepers under conditions open to almost any family. I am able to keep Diana until April.

Clinton, N. Y. *E. P. Powell.*

Among the White Pines.

To the Editor of GARDEN AND FOREST:

Sir,—Were I called upon to choose an emblem for America I should select the White Pine. I have thought of the wild Grape-vine for its old indubitable connection with Wineland, its irrepressible energy of growth and the quiet perseverance with which it preaches its gospel of wild natural loveliness and latent possibilities of beauty in the very face of the most hideous structures of bad, cheap taste. But nothing seems as expressive as the White Pine; I cannot exactly say why. Does not the essence of a good emblem lie therein that its beauty and appropriateness would be lost by translating into words? Perhaps it is because it is nowhere so beautiful as here in its native home, where it has been one of my most charming experiences to study its beauty in different surroundings and stages of growth.

There are the young trees, looking like bevies of graceful girls in silk attire, bowing their heads together and whispering gayly at the grotesque attitudes of their boy cousins, the Pitch Pines; the serried ranks of the old ones, with boughs bent and broken in the battle of life, but still indomitable; the copses on the hill-tops, where they raise their splendid crowns in mid-air from among a fringe of lower trees, and the stately avenues, looking like rugged veterans on courtly parade, traversing smiling slopes of New England landscape.

But most of all do I love an old grove in a certain seaside spot of New England, and well do I remember my first discovery of it. I had left the village, attracted by a belt of trees on the further side of some fields. An old road skirted it, running along a stone wall to a closed gray-stone building, so suggestive in its silence that I had to peep through a crack in the door. It proved to be a half-dismantled studio, surely once tenanted by a lover of trees. How he must have reveled in the classical poetry of the long rays of light playing over the ground between the dark stems of the Pines in the open grove to the right of this studio! Through this grove a winding track conducted me to a veritable fairies' parlor of young Oaks, tall-grass and graceful Sweet Fern, and there lost itself. Fairies' parlors are not thoroughfares, as a rule. So I had to find my way out as best I might, and in doing so I came unawares upon the most magnificent grove of old Pines that I have ever seen. The needles lay piled thick on the ground in soft drifts and cushions, adorned here and there with tangled cords of Smilax and graceful feathers of Bracken, spreading a carpet of dull gold, with light touches of green between the grandly shaped trunks of the majestic old trees, every tree an individuality, as full of character in the forms of the bole as a piece of the best Japanese bronze-work.

This grove became my study. I brought my books, but used to spend most of my time leaning back against the natural cushions at the foot of one of the trees, never tiring of watching the play of light and studying the forms of the trees—some straight and splendid in harmonious growth, like young heroes, others twisted about by some higher power into forms of grotesque fantasticality. The shadows, too, seemed to be unconsciously obeying great laws of beauty in their rhythmic movements; sometimes solemn and grand, sometimes alighting only to move on, caressing so softly, wandering so airily, moving, yet never rushing. I know people here whose thoughts move in the same way.

New York. *Cecilia Waern.*

Recent Publications.

In Gold and Silver. By Geo. H. Ellwanger. D. Appleton & Co.: New York.

This book consists of a series of sketches on subjects which do not naturally fall within the field occupied by GARDEN AND FOREST, but the last three, entitled Warders of the Woods, A Shadow upon the Pool and The Silver Fox of Hunt's Hollow, bring the reader into contact with so many delightful phases of the outdoor world that all who have a love for nature will be captivated by them. If the book has any fault it is a certain super-refinement of style, which at times suggests a lack of spontaneity and smacks of the library rather than of the woods. There is no doubt, however, as to the genuineness of Mr. Ellwanger's enthusiasm or the accuracy of his observation. He does not sketch at second-hand, but from a personal familiarity with the scenes he describes, and a profound and appreciative admiration of them. The illustrations are as dainty as the author's style, and, taken altogether, the book is one of the handsomest of the holiday publications of the year.

Notes.

The Orange-growers of Southern California are reaping a rich harvest, and the total yield will probably amount to 7,000 car-loads. Buyers are paying $3.25 a box for the best fruit delivered at the railroad station, which means a return of from $500 to $800 an acre for groves that are over eight years old.

According to the *American Florist*, the Pansy-seed at Lincoln Park, Chicago, is sown on Christmas-day. The seedlings are pricked out in flats when large enough to handle, and carried through the winter in a cool greenhouse, which is considered a much less troublesome and expensive way than keeping the plants in frames.

The January number of *Meehans' Monthly* gives a picture of Opuntia prolifera, which was discovered by Dr. Parry on the dry hills about San Diego, in California, in 1849. Mr. Meehan says that at home it appears in immense masses, forming impenetrable thickets often eight feet high, and likened to masses of coral reef, the flower-branches pushing

out on all sides and sometimes pendulous. The effect on the landscape of the bright pink flowers against the huge, succulent gray branches is wonderfully striking.

A California dispatch to the *Tribune* of this city says that the pickled olives of Pomona, in that state, have proved so acceptable that a grocer in this city, last week, sent out an order for 20,000 gallons of them. This order has given a stimulus to the olive industry in that neighborhood, and several thousand acres will be planted with the tree.

On the last day of the year Mr. Gerard sent to this office a perfect flower of the beautiful and fragrant Iris stylosa speciosa. This is the natural season for the blooming of this species, and as the weather is inclement in this latitude the protection of a cool house or frame is necessary to secure flowers. It is an excellent subject for pot-culture.

A California paper, in speaking of the richness of the color of the Japanese Persimmons, states that after the leaves of the tree fall the branches seem to fairly blaze with the ripening fruits. This Persimmon is too tender to bear transportation, and it is only had in perfection where it matures. When dead ripe it is of the consistency of custard, and when "placed in a silver cup stem down, the blossom end cut off with a sharp, thin knife and served with a dainty spoon to match the cup, it is an offering fit for the queen of the fairies."

Mr. George F. Wilson writes to the *Gardeners' Chronicle* of his famous Lilies, that his mode of cultivating them in the open ground in sunken casks, from which the bottoms have been taken away, has proved more advantageous than ever this year. In one cask there were twenty-one stems of Fortune's Tiger Lily, the tallest of which was eight feet six inches high. When grown as close as these, the top soil needs renewing every year. The tops of the cask should not be sunken much below the surface of the surrounding soil, for if they are, the roots of shrubs will come in over the top of the cask and rob the Lilies of their share of the food.

The gardeners of Kew, past and present, are desirous of forming themselves into a guild, and propose to publish annually a journal in which will be recorded the present Kew staff, from the director to the gardeners, a list of all old attachés, with the date of their leaving Kew and their present positions and addresses, together with notes of interest from the gardens and correspondence from various members of the guild. The journal will consist of about fifty pages, to cover the expense of which, with postage, an annual subscription of one shilling will be necessary. It will be published on May 1st. All persons who have at any time worked as gardeners at Kew are requested to send their names, with date of leaving Kew, present position and address, to the Secretary, J. Aikman, Whitestile Road, Brentford. There are probably 500 Kew men distributed all over the world, but of the whereabouts of all except a small proportion there is at present no record.

A few years ago seeds of Eucalyptus globulus were sent to Kew Gardens, which had been collected from trees growing at such a high altitude in Tasmania that theywere accustomed to severe frosts. It was hoped that plants from these seeds might endure the rigors of an English winter, but the experiments were disappointing, and the first hard frost so severely checked the seedlings, that, notwithstanding the protection received later from a canvas screen, they all died before the winter was over. In fact, at Kew, these seedlings from Blue Gum trees, which had been accustomed to frost, were, if anything, not so hardy as those from the ordinary forms of Eucalyptus globulus, and later experiments with plants raised from Eucalyptus coccifera from trees which were coated with icicles a foot long, seem to corroborate these results. After all, this only means that there are a great many conditions which affect what we call hardiness in trees, for there is no doubt that, as a rule, seeds taken from the northern limit of a species will produce hardier trees than seeds of the same species from trees which grow in warmer latitudes.

In writing of various Japanese plants, Mr. P. J. Berckmans, in a private letter, informs us that Rhus succedanea, the Japanese Wax-tree, is often injured at Augusta, Georgia, by spring frosts, although if seedlings escape for two or three years the plants prove perfectly hardy, making handsome, bushy shrubs. Rhus succedanea is a native of southern Japan, where it grows into a handsome small tree twenty-five or thirty feet in height, and in late autumn is particularly beautiful from the brilliant scarlet color the foliage assumes at that season of the year. It is still sometimes cultivated in southern Japan for the wax which surrounds the seeds, and which at one time was largely manufactured into candles, which, however, are now rarely used in Japan, owing to the general introduction of petroleum oil. In the latitude of Tokyo, Rhus succedanea is perfectly hardy, ripening its seeds and attaining tree-like proportions. It might, therefore, be expected to flourish anywhere in the coast region of the United States south of the Delaware peninsula, or possibly even farther north. Of Broussonetia, another inhabitant of the southern islands of Japan, Mr. Berckmans writes: "I have a tree thirty-three years old which produces male flowers only. The young shoots are covered with purple bark, and the leaves, as they first appear in the spring, are also purple, changing to dark green during the summer. The objection to this tree is its tendency to throw up numerous suckers, which appear sometimes at a distance of thirty to forty feet from the parent tree, but otherwise it is a very handsome shade-tree."

Professor Rothrock writes to *Science* to suggest that many leagues of what is apparent desert, west of the Mississippi, might be put to some productive use. In the first place, some of the vegetation there, especially some species of the Chenopodiaceæ, may develop possible value. This family already furnishes the Beet, the Mangel Wurzel and some other species whose seeds the Indians use as food. Eurotia lanata is a valued forage-plant in some of the drier regions of the west, and it would seem to be worth inquiring what other plants of the order can be used as food, what each one promises in the way of improvement under long-continued cultivation, and whether there is any way of treating the seeds of any of the plants of the order which contain nutritive qualities so as to render them fit for food. Inasmuch as it would take a long time and carefully conducted experiments to find satisfactory answers to these queries, Professor Rothrock suggests that the government or the agricultural colleges of the states in which these plants grow might make the tests. Among plants of the Mint family the seeds of Salvia Columbariæ have been used by the aborigines, and was an article of food among the Aztecs. They still hold a place on the diet list of the California Indians. Besides this search after new plants it may be worth while to inquire whether we get the largest use from our rainfall, for this barren ground is only barren for lack of water. The question of water storage and supply is complicated by state lines since, for example, much of the water which might be used in Kansas, Nebraska and Utah comes from the mountain-slopes of Colorado. These questions are not immediately urgent, but when our population becomes sufficient to press upon our available food-supply they will demand attention.

In the December issue of *The Botanical Gazette* there is a figure reproduced from one of Mr. Faxon's drawings of a species of Tabebuia, a native of Mexico and central America, which Professor Rose, of the Department of Agriculture, describes as a new species, and which he dedicates to Mr. John Donnell Smith, of Baltimore, its discoverer. It is said to be a tree fifty to seventy-five feet in height, with a trunk often four feet in diameter, palmately compound leaves on long petioles, and ample terminal panicles of flowers with bright yellow tubular five-lobed corollas, and followed by Catalpa-like pods twelve inches or more in length. This fine tree was collected by Mr. Smith at Cuyuta, in the Department of Escuintla, in Guatemala, at an altitude of two hundred feet, in April, 1890, and a year later by Dr. Edward Palmer, at Colema, in Mexico, where it is common on the neighboring mountains, and where it is often cultivated. It is said to be one of the most beautiful trees in Mexico, and is called "Primavera." The flowers, which are a beautiful golden yellow, are produced in great abundance and usually appear before the unfolding of the leaves. The trees are cut into logs about twelve feet in length and shipped from Manzanillo, in the state of Colema, to the United States, principally to Cincinnati and San Francisco, where they are used a great deal for cabinet-work and veneering. The tree is very common in the lower part of the Department of Escuintla. It is tall and slender, usually leafless, and with profuse delicate yellow flowers standing out against the sky like golden clouds. For the last twelve or fifteen years a handsome light-colored wood has been imported into the market of San Francisco from the west coast of Mexico, and is said to have been produced by a tree called "Primavera." This wood, of late years, has been quite extensively brought into the eastern markets under the name of "white mahogany," and is now considered here one of the most valuable and useful of all cabinet-woods. Its origin has long remained unknown, and although there may be still some doubt as to the identity of white mahogany with the Primavera of Manzanillo, Professor Rose's note gives the indication of the direction in which further investigations of the origin and source of supply of this wood should be made.